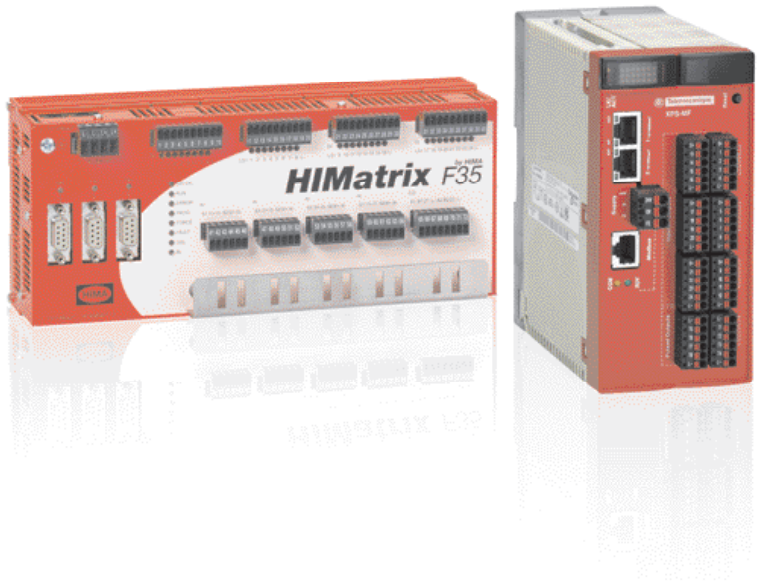
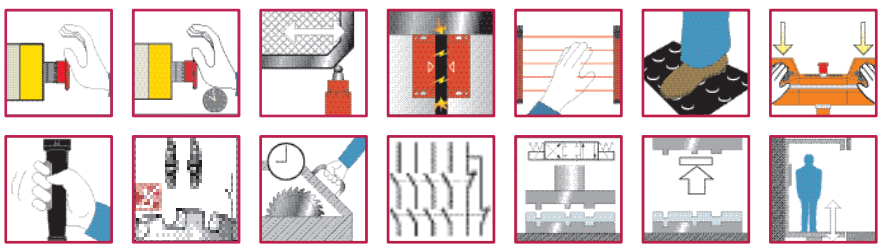
Preventa safety compact PLCs

XPSMF40, XPSMF31/30/35

Catalogue

January 2015





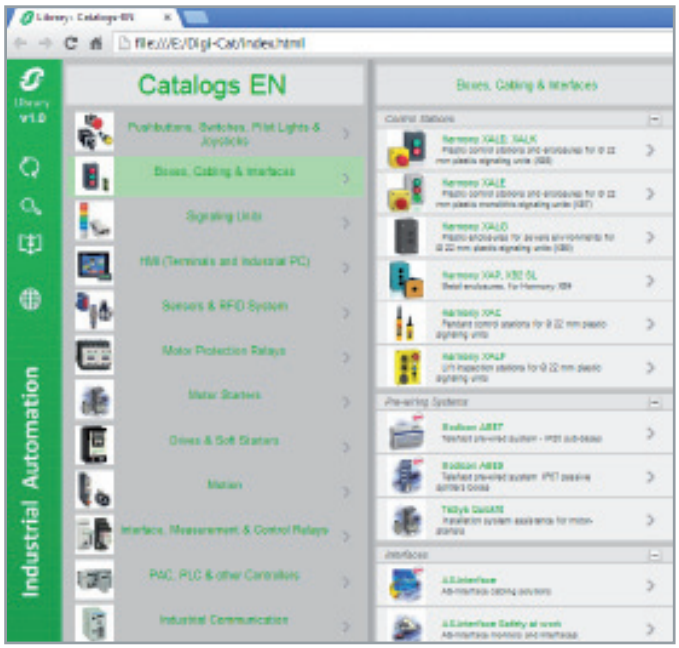
Schneider Electric

How can you fit a 6000-page catalog in your pocket ?

Schneider Electric provides you with the complete set of industrial automation catalogs all on a handy USB key for PC or in an application for tablets

Digi-Cat, a handy USB key for PC

Digi-Cat
The complete digital catalog for industrial automation
Schneider Electric
Makes your choice easy every day, everywhere!



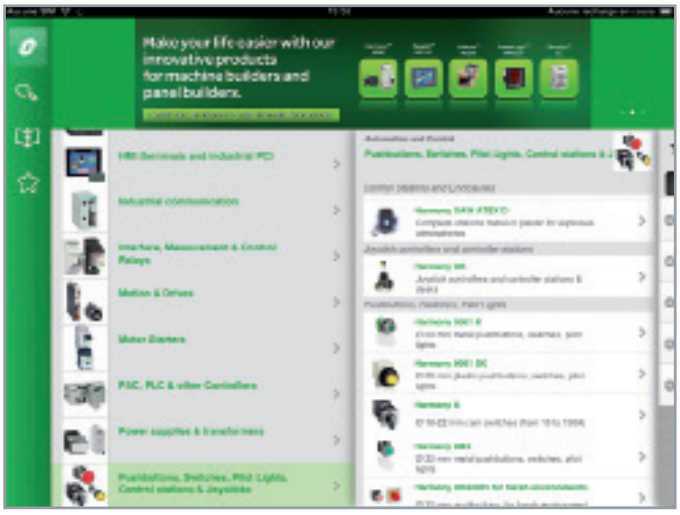
- Convenient to carry
- Always up-to-date
- Environmentally friendly
- Easy-to-share format

Contact your local representative to get your own Digi-Cat

e-Library, the app for tablets

If you have an iPad®:

- Go to the App Store and search for e-Library
- or scan the QR code



If you have an Android tablet:

- Go to the Google Play Store™ and search for eLibrary
- or scan the QR code

General contents

Preventa safety compact PLCs
Type XPSMF40, XPSMF31/30/35

- **General presentation** ... *2*
- **Selection guide: Preventa safety compact PLCs** ... *3*
- **Preventa safety compact PLCs XPSMF40**
  - Presentation ... *4*
  - Description ... *5*
  - References ... *5*
- **Preventa safety compact PLCs XPSMF31/30/35**
  - Presentation ... *6*
  - Description ... *7*
  - References ... *7*
- **Communication**
  - Presentation ... *8*
  - Characteristics ... *9*
- **Programming software type XPSMFWIN**
  - Presentation ... *10*
  - References ... *10*
  - Interface ... *11*
  - Structure window ... *12*
  - FBD (Function Block Diagram) editor ... *12*
  - Programming ... *13*
- **Product reference index** ... *14*

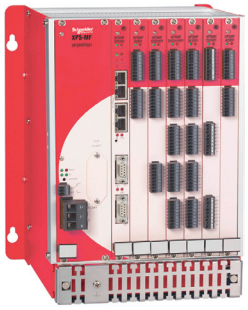
Preventa safety compact PLCs
Type XPSMF40, XPSMF31/30/35

Preventa compact/Modular Safety PLCs and remote I/O enable the monitoring of simple to complex safety functions for all industrial applications relating to the protection of personnel and machine safety.

Designed for use with numerous machine safety functions, these safety PLCs and remote I/O are intended for use in safety related parts of control systems.

They can manage up to category 4 performance level e EN/ISO 13849-1, SIL 3 (safety integrity level) EN/IEC 61508 or EN/IEC 62061.

Safety compact PLCs



Modular safety PLCs

Safety remote input/output modules

Safety PLCs

In order to meet safety requirements, the compact/modular safety PLCs incorporate two essential functions (**Redundancy** and **Self-monitoring**).

In addition uses **SafeEthernet** safe communications protocol between the safety PLCs and safe remote I/O modules.

Redundancy

- The double or triple *(1)* processors integrated in the compact and modular safety PLCs analyses and compares the data received from the safety inputs and outputs.
- The incoming and outgoing data (programmed values and received values) are received in parallel by the processors and compared in real-time.

Self-monitoring (Watchdog)

The safety PLCs and remote I/O continuously monitor the data processing cycle and the execution of tasks, and intervenes if the cycle time does not conform to the predefined values.

Integrated switch

The integrated switch stores for a very short time and sends at very high speed the data provided by the inputs and outputs of the safety PLCs and remote I/O on the Ethernet network, whilst avoiding signal collisions and excessive amounts of data on the network.

Line control for safety PLCs and safety remote I/O modules

Line control is a means of short circuit and line break monitoring. Using line control outputs enables category 4 performance level e EN/ISO 13849-1, SIL 3 (safety integrity level) EN/IEC 61508 or EN/IEC 62061 to be achieved.

The line control outputs provide a high signal with a very short low signal enabling a wiring fault (short-circuit, line break) to be identified on the inputs of the safety PLCs and safety remote I/O.

Programming automated safety functions

Software **XPSMFWIN** (reference **SSV1XPSMFWIN**) running on a PC enables the programming of all safety remote I/O modules and safety PLCs, as well as configuration of the communication settings.

(1) With XPSMF40 PLC only

Preventa safety compact PLCs
Type XPSMF40, XPSMF31/30/35

Presentation

*Products referenced **XPSMF31222, XPSMF3022** and **XPSMF35●●** are marked **HIMatrix F31, HIMatrix F30** and **HIMatrix F35**.*

Compact PLCs:
- Designed for use with numerous machine safety functions and for the protection of personnel.
- Designed for use in safety related parts of control systems up to category 4, performance level “e” EN/ISO 13849-1, and up to SIL 3 EN/IEC 61508 or EN/IEC 62061.

User memory	Application	250 kB			
	Data	250 kB			
Response time		Depending on size of application			
Maximum consumption		8 A			9 A
Supply		External ⎓ 24 V supply (with separate protection conforming to EN/IEC 60950, SELV (Safety Extra Low Voltage) or PELV (Protection Extra Low Voltage) rated)			
Inputs	**Digital**	Number of channels	**24**, configurable, not electrically isolated	**20**, not electrically isolated	**24**, not electrically isolated
		Current at state 0	1.5 mA max. at ⎓ 24 V	1.5 mA max., 1.25 mA at 5 V	
		Current at state 1	3.5 mA at ⎓ 24 V 4.5 mA at ⎓ 30 V	≥ 2 mA at ⎓ 15 V	> 2 mA at ⎓ 15 V 3.5 mA at ⎓ 24 V 4.5 mA at ⎓ 30 V
	Analogue	Number of channels	–	–	– **8**, single-pole
		Range: voltage/current	–	–	– 0…10 V/0…20 mA *(1)*
	Counting	Number of channels	–	–	– **2**
		Current	–	–	– 1.4 mA at ⎓ 5 V, 6.5 mA at ⎓ 24 V
Outputs	**Digital**	Number of channels	**24**, configurable, not electrically isolated	**8** *(2)*, not electrically isolated	**8**, not electrically isolated
		Output current	Chnls. 1 to 3, 5 to 7, 9 to 11, 13 to 15, 17 to 19, 21 to 23: 0.5 A at 60 °C Channels 4, 8, 12, 16, 20 and 24: 1 A at 60 °C, 2 A at 50 °C	Channels 1 to 3 and 5 to 7: 0.5 A at 60 °C Channels 4 and 8: 1 A at 60 °C, 2 A at 50 °C	
	Line control		**2 x 4**	*(2)*	*(2)* –
Input/output connections			Removable screw terminals are provided with all Safety compact PLCs Reference **XPSMF40●●** is also provided with cage clamp terminal		
■ **Safe communication** using SafeEthernet protocol			yes	yes	yes yes
■ **Non safe communication** using Modbus TCP/IP protocol, server (slave)			yes (**XPSMF4002/4022/4042**)	yes (**XPSMF31222**)	yes (**XPSMF3022**) yes (**XPSMF3502/ MF3522/MF3542**)
Communication on fieldbus					
Non safety using Modbus RTU protocol, slave (RS 485)			yes (**XPSMF4020/4022**)	–	yes (**XPSMF3022**) yes (**XPSMF3522**)
Non safety using PROFIBUS DP protocol, (V0 slave)			yes (**XPSMF4040/4042** oui (**XPSMF4040/4042**	– –	– – yes (**XPSMF3542**) oui (**XPSMF3542**)
Safety compact PLC type			**XPSMF400●/MF402●/ MF404●)**	**XPSMF31222**	**XPSMF3022** **XPSMF3502/ MF3522/MF3542**
See page			4	6	

(1) With shunt 500 Ω.
(2) Digital inputs can be supplied by the line control outputs of the same I/O card.

Preventa safety compact PLCs
Type XPSMF40

XPSMF4000
XPSMF4002

XPSMF4020
XPSMF4022

XPSMF4040
XPSMF4042

Presentation

The safety compact PLC range **XPSMF40●●** comprises of 6 versions that are differentiated by their non safety related communication protocols.

Compact PLCs	Digital Inputs/Outputs	Line control outputs	Communication		
			On Ethernet network		On fieldbus
			Safety protocol	Non safety protocol	
XPSMF4000	24, configurable	8	SafeEthernet	–	–
XPSMF4002	24, configurable	8	SafeEthernet	Modbus TCP/IP Server	–
XPSMF4020	24, configurable	8	SafeEthernet	–	Modbus serial Slave (RTU)
XPSMF4022	24, configurable	8	SafeEthernet	Modbus TCP/IP Server	Modbus serial Slave (RTU)
XPSMF4040	24, configurable	8	SafeEthernet	–	PROFIBUS DP V0 slave
XPSMF4042	24, configurable	8	SafeEthernet	Modbus TCP/IP Server	PROFIBUS DP V0 slave

Digital inputs

Safety compact PLCs **XPSMF40●●** incorporate up to 24 digital inputs for the connection of safety related input devices, such as emergency stop contacts, magnetic switches, light curtains, etc.

Digital outputs

Safety compact PLCs **XPSMF40●●** incorporate up to 24 digital outputs for the connection of safety related output devices, such as contactors, illuminated beacons, sirens, etc.

Line control outputs

Safety compact PLCs **XPSMF40** incorporate 8 lign control ouputs for short-circuits and line break monitoring.

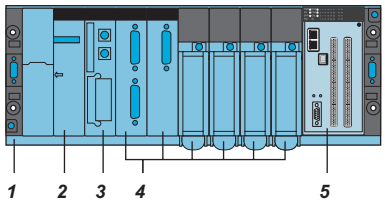
Remote inputs and outputs

In addition to the inputs/outputs integrated as standard, safety compact PLCs **XPSMF40●●** can be connected to safety remote input modules **XPSMF1** and/or safety remote output modules **XPSMF2** and/or safety remote mixed I/O modules **XPSMF3**.
The safety remote input, output and mixed I/O modules can be located within the vicinity of the machines to be monitored, thus reducing cabling.

Communication between these safety remote I/O modules and safety PLCs **XPSMF40●●** is performed on an Ethernet network using the SafeEthernet safety protocol, via the integrated RJ45 switched Ethernet communications ports.

Integrating safety PLCs XPSMF40 on a Premium automation platform

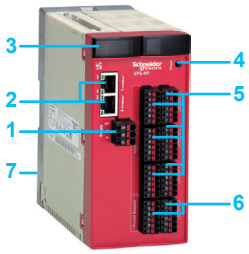
Designed for mechanical integration on a Premium automation platform, safety PLCs **XPSMF40●●** occupy 2 slots on the Premium rack **TSXRKY**.
There is interaction between the two programming environments (Unity and XPSMFWIN): the variables defined using software **XPSMFWIN** can be retrieved by Unity (platform programming software) by using a tool included in the software.

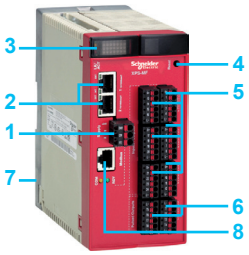


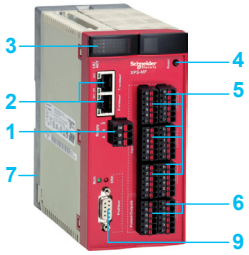
*Example of mechanical integration of a safety compact PLC **XPSMF40** on a Premium automation platform.*

1 *Premium rack*
2 *Power supply module*
3 *Premium processor module*
4 *Other Premium modules (communication, I/O)*
5 *Safety compact PLC **XPSMF40***

Preventa safety compact PLCs
Type XPSMF40







XPSMF4000
XPSMF4002

XPSMF4020
XPSMF4022

XPSMF4040
XPSMF4042

Description

Safety PLCs XPS
XPSMF4000/MF4002/ MF4020/MF4022/ MF4040/MF4042

On the front face of the enclosure:

1 One terminal block *(1)* for ⎓ 24 V supply.
2 Two integrated RJ45 (type 10BASE-T/100BASE-TX) switched ports for programming, and for Safety and non-safety related communication on Ethernet (safety related using SafeEthernet protocol and Non-safety related using Modbus TCP/IP server protocol).
3 Process status LEDs.
4 One “Reset” button.
5 Six terminal blocks *(1)* for connection of configurable digital I/Os.
6 Two terminal blocks *(1)* for connection of line control outputs.
7 **On the rear face**: one removable plate with spring fixing for mounting on 35 mm ⊔ rail.

Safety PLCs XPSMF4020/MF4022

On the front face of the enclosure:

8 One RJ45 connector for connection on Modbus serial (RTU), with 2 process status LEDs.

Safety PLCs XPSMF4040/MF4042

On the front face of the enclosure:

9 One SUB-D (9-pin female) connector for connection on PROFIBUS DP, with 2 process status LEDs.

*(1) Removable Screw and Cage clamp terminals are provided with safety compact PLCs **XPSMF40**.*

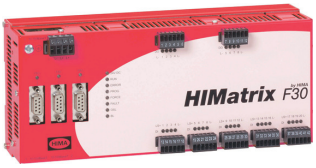
Safety compact PLCs

⎓ 24 V supply

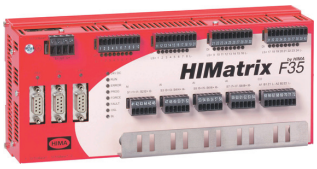
Digital Inputs or Outputs	Line control outputs	Communication on				Reference	Weight kg/ *lb*
		Ethernet network		Modbus serial (RTU)	PROFIBUS DP		
		SafeEthernet protocol	Modbus TCP/IP protocol				
0…24 configurable channels	2 x 4	Yes	–	–	–	**XPSMF4000**	1.000/ *2.205*
			Yes, server	–	–	**XPSMF4002**	1.000/ *2.205*
			–	Yes, slave	–	**XPSMF4020**	1.000/ *2.205*
			Yes, server	Yes, slave	–	**XPSMF4022**	1.000/ *2.205*
			–	–	Yes, V0 slave	**XPSMF4040**	1.000/ *2.205*
			Yes, server	–	Yes, V0 slave	**XPSMF4042**	1.000/ *2.205*

Preventa safety compact PLCs
Type XPSMF31/30/35

XPSMF31222



XPSMF3022



XPSMF35●●

*Products referenced **XPSMF31222, XPSMF3022** and **XPSMF35●●** are marked **HIMatrix F31**, **HIMatrix F30** and **HIMatrix F35***

Presentation

The safety compact PLC range **XPSMF31/30/35** comprises 5 versions that are differentiated by their characteristics, detailed below. Safety compact PLCs **XPSMF3●●●●** incorporate up to 24 digital inputs for the connection of safety related input devices.

Compact PLCs	Inputs			Outputs Digital	Communication	
	Digital	Analogue	Counter		On Ethernet network	On fieldbus
XPSMF31222	20	–	–	8 *(1)*	For all compact PLCs XPSMF31/30/35 using SafeEthernet safety protocol, and with non safety protocol Modbus TCP/IP server	–
XPSMF3022	20	–	–	8 *(1)*		Modbus serial Slave (RTU)
XPSMF3502	24	8	2	8		–
XPSMF3522	24	8	2	8		Modbus serial Slave (RTU)
XPSMF3542	24	8	2	8		PROFIBUS DP V0 slave

Digital inputs

Safety compact PLCs **XPSMF3●●●●** incorporate up to 24 digital inputs for the connection of safety related input devices.

Analogue inputs

Safety compact PLCs **XPSMF35●●** incorporate 8 analogue measuring inputs that receive analogue safety related signals from the machines to be monitored *(1)*.

- Closed circuit scanning of input channels,
- Single-pole measuring of 0 to 10 V voltages,
- Measuring 0 to 20 mA currents using shunt

Counter inputs

Safety compact PLCs **XPSMF3502, XPSMF3522, XPSMF3542** incorporate 2 independent and configurable counting channels:

- Incremental encoders (⎓ 5 V),
- Sensors, 2/3-wire PNP/NPN (⎓ 24 V).

Digital outputs

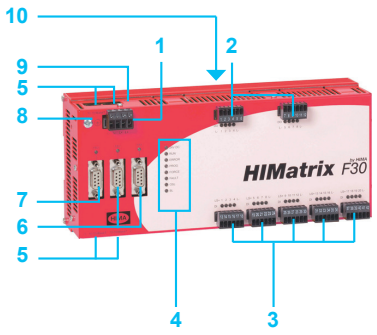
Each safety compact PLC **XPSMF●●●●** incorporate 8 digital outputs for connection to signalling equipment and machines to be controlled *(2)*.

Remote inputs and outputs

In addition to the inputs/outputs integrated as standard, safety compact PLCs **XPSMF31/30/35** can be connected to safety remote input modules **XPSMF1** and/or safety remote output modules **XPSMF2** and/or safety remote mixed I/O modules **XPSMF3**.
The safety remote input, output and mixed I/O modules can be located within the vicinity of the machines to be monitored, thus reducing cabling.
Communication between these safety remote I/O modules and safety compact PLCs **XPSMF31/30/35** is performed on an Ethernet network using the SafeEthernet safety protocol, via the Integrated RJ45 switched Ethernet communications ports.

(1) Digital outputs can be configured for line control.
(2) Use shielded dual twisted pair cables, maximum length 300 m, short-circuit unused analogue inputs.

Preventa safety compact PLCs
Type XPSMF31/30/35

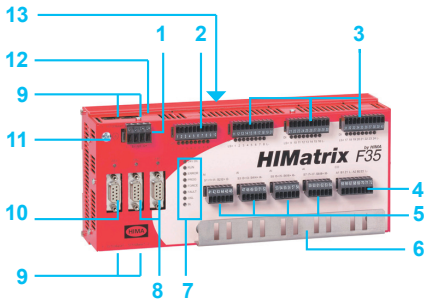


Description

Safety PLCs XPSMF31222 and XPSMF3022

On the front face of the metal enclosure:

1 One terminal block *(1)* for ⎓ 24 V supply.
2 Two terminal blocks *(1)* for connection of digital outputs, with output status LED (four LEDs per terminal block).
3 Five terminal blocks *(1)* for connection of digital inputs, with input status LED (four LEDs per terminal block).
4 Eight process status LEDs.
5 Four integrated RJ45 (type 10BASE-T/100BASE-TX) switched ports for programming, and for Safety and non-safety related communication on Ethernet (safety related using SafeEthernet protocol and Non-safety related using Modbus TCP/IP server protocol).
6 On **XPSMF3022** only: two unused SUB-D connectors (FB1 and FB2).
7 On **XPSMF3022** only: one SUB-D 9-pin connector for connection on Modbus serial (RTU) (FB3).
8 One earth connection screw.
9 **On the top**: one "Reset" button.
10 **On the rear face**: one spring operated fixing device for mounting on 35 mm ⊥ rail.



Safety PLCs XPSMF35●●

On the front face of the metal enclosure:

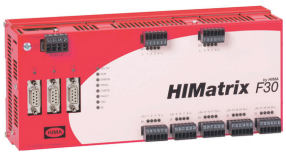
1 One terminal block *(1)* for ⎓ 24 V supply.
2 One terminal block *(1)* for connection of digital outputs, with four digital output status LEDs.
3 Three terminal blocks *(1)* for connection of digital inputs, with input status LED (eight LEDs per terminal block).
4 One terminal block *(1)* for connection of 2 counting input channels.
5 Four terminal blocks *(1)* for connection of analogue inputs.
6 One plate for securing shielded analogue input connection cables.
7 Eight process status LEDs.
8 Two unused SUB-D connectors (FB1 and FB2).
9 Four integrated RJ45 (type 10BASE-T/100BASE-TX) switched ports for programming, and for Safety and non-safety related communication on Ethernet (safety related using SafeEthernet protocol and Non-safety related using Modbus TCP/IP server protocol).
10 One type SUB-D 9-pin connector (FB3) for connection on PROFIBUS DP (**XPSMF3542**) or Modbus serial (RTU) (**XPSMF3522**).
11 One earth connection screw.
12 **On the top**: one "Reset" button.
13 **On the rear face**: one spring operated fixing device for mounting on 35 mm ⊥ rail.

*(1) Removable screw terminals are provided with safety compact PLCs **XPSMF31/30/35**.*

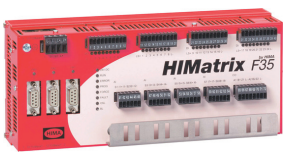
Safety compact PLCs

⎓ 24 V supply

XPSMF31222



XPSMF3022



XPSMF35●●

Inputs			Outputs	Communication on				Reference	Weight kg/ *lb*
			Digital	Ethernet network		Modbus serial (RTU)	PROFIBUS DP		
Digital	Analogue	Counting		Safe Ethernet protocol	Modbus TCP/IP server protocol				
20	–	–	8	Yes	Yes	–	–	**XPSMF31222**	1,000/ *2.205*
						Yes Slave	–	**XPSMF3022**	1.200/ *2.646*
24	8	2	8	Yes	Yes	–	–	**XPSMF3502**	1.200/ *2.646*
						Yes Slave	–	**XPSMF3522**	1.200/ *2.646*
						–	Yes V0 slave	**XPSMF3542**	1.200/ *2.646*

*Products referenced **XPSMF31222, XPSMF3022** and **XPSMF35●●** are marked **HIMatrix F31**, **HIMatrix F30** and **HIMatrix F35.***

Preventa safety compact PLCs
Type XPSMF40, XPSMF31/30/35
Communication on network and bus

Presentation

To communicate, Preventa safety compact PLCs **XPSMF** are fitted with:
- Integrated 2 or 4 RJ45 Ethernet switched ports for transfer Safety and Non-safety related data (Safety Related using SafeEthernet protocol, Non-Safety Related using Modbus TCP/IP protocol),
- and/or serial communication ports for transferring non safety related data.

Safety communication on a single network
The Ethernet network supports the SafeEthernet protocol: physically, a single network is possible for communication between:
- safety products (SafeEthernet protocol),
- non safety related products (Modbus TCP/IP and other protocols),
- safety related and non safety related products (Modbus TCP/IP protocol).

Communication on more than one network: a minimum of two separate cabling systems are established.
- An Ethernet network with Modbus TCP/IP protocol is used for communication between non safety related products and the safety PLCs.
- An Ethernet network with SafeEthernet protocol is used for communication between the safety PLCs **XPSMF** and safety remote I/O modules **XPSMF1/2/3**.
- A Modbus serial network with Modbus serial (RTU) protocol is used for communication between the safety PLCs **XPSMF** and non safety related products.
- A PROFIBUS DP network with PROFIBUS protocol is used for communication between the safety PLCs **XPSMF** and non safety related products.

Safety PLCs	**Communication on Ethernet network**			**Communication on fieldbus**	
Compact	**Port** (number x type)	**SafeEthernet protocol: safe communication**	**Modbus TCP/IP protocol: non safe communication**	**Modbus serial (RTU) protocol**	**PROFIBUS DP protocol**
XPSMF31222	4 x RJ45	yes	yes	no	no
XPSMF3022	4 x RJ45	yes	yes	yes (slave) / 1 x SUB-D (9-pin)	no
XPSMF3502	4 x RJ45	yes	yes	no	no
XPSMF3522	4 x RJ45	yes	yes	yes (slave) / 1 x SUB-D (9-pin)	no
XPSMF3542	4 x RJ45	yes	yes	no	yes (slave) / 1 x SUB-D (9-pin)
XPSMF4000	2 x RJ45	yes	no	no	no
XPSMF4002	2 x RJ45	yes	yes	no	no
XPSMF4020	2 x RJ45	yes	no	yes (slave) / 1 x RJ45	no
XPSMF4022	2 x RJ45	yes	yes	yes (slave) / 1 x RJ45	no
XPSMF4040	2 x RJ45	yes	no	no	yes (slave) / 1 x SUB-D (9-pin)
XPSMF4042	2 x RJ45	yes	yes	no	yes (slave) / 1 x SUB-D (9-pin)

Preventa safety compact PLCs

Type XPSMF40, XPSMF31/30/35

Communication on network and bus

Characteristics

Protocol			**SafeEthernet**	
Compatibility with safety compact PLCs			**XPSMF4000, XPSMF4002, XPSMF4020, XPSMF4022, XPSMF4040, XPSMF4042**	**XPSMF31222, XPSMF3022, XPSMF3502, XPSMF3522, XPSMF3542**
Transmission	Speed (Baud rate)		100 Mbps Half duplex, 10 Mbps Full duplex, Autonegotiation	
	Communication ports		Integrated 2 RJ45 switched Ethernet communications ports	Integrated 4 RJ45 switched Ethernet communications ports
	Medium		Dual twisted pair cable, category 5D or better	
Structure			10BASE-T/100BASE-TX	
Transparent Ready service	Class		A10	
	Standard Ethernet TCP/IP communication services		Modbus TCP/IP	
			Modbus TCP/IP messaging (reading/writing of data words) Modbus identification requests	
	TCP port		Standard 502	
	Max. number of TCP/IP connections		1 to 20	
Bus type			**Modbus serial (RTU)**	
Compatibility with safety compact PLCs			**XPSMF3022, XPSMF3522**	**XPSMF4020, XPSMF4022**
Serial link port		Number and type	1 x SUB-D 9-pin female (FB3)	1 x RJ45 (Modbus)
		Master/Slave	Slave	
Addressing			122 slave addresses. Addressing range: 1…247	
Medium			Shielded twisted pair cable	
Physical layer			RS 485	
Services			13 Modbus functions (reading/writing of bits and words, event counters, connection events, diagnostics, identification)	
	Functions	**Code**	Modbus slave	
		01	Reading n bits of output	
		02	Reading n bits of inputs	
		03	Reading n words of output	
		04	Reading n words of inputs	
		23	Reading/writing variables	
		15	Writing bit variables	
		16	Writing word variables	
		05	Writing 1 bit of output	
		06	Writing 1 word of output	
		08	Diagnostics	
		43	Reading equipment identification	
Transmission	**Binary transfer rate (bps)**		115 200, 76 800, 62 500, 57 600, 38 400, 19 200, 9600, 4800, 2400, 1200, 600, 300. Default value: 57 600	
Elements	**Parity**		None. Odd. Even. Default value: even	
	Stop bit		Standard. 1 stop bit. 2 stop bits. Default value: standard	
Bus type			**PROFIBUS DP**	
Compatibility with safety compact PLCs			**XPSMF3542**	**XPSMF4040, XPSMF4042**
Serial port	Number and type		1 x SUB-D 9-pin female (FB3)	1 x SUB-D 9-pin female (PROFIBUS)
	Master/Slave		Slave, V0	
Physical layer			RS 485	
Topology			Linear, with line terminators at each end	
Medium			Shielded twisted pair cable	
Number of slaves			32 slaves on each segment, 126 slaves maximum with repeaters	
Data exchange speed			9.6 kbps…12 Mbps, depending on the length of the segment (1200 m…100 m)	

Programming software
Type XPSMFWIN
for Preventa compact & modular safety PLCs XPSMF

Presentation

Conforming to standard IEC 61131-3, programming software **XPSMFWIN** is designed for programming all safety PLCs **XPSMF** and safety remote I/O modules.

To create a program the user can use predefined function blocks, such as the elementary logic functions and certified function blocks, by dragging the blocks into the software programming area.
The “drag and drop” operation of the Windows programming environment enables quick and simple creation of configurations.

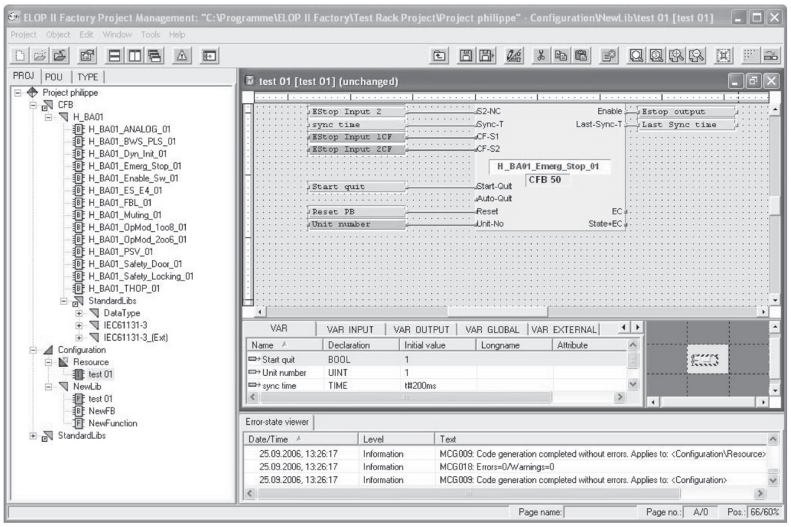
Using the **XPSMFWIN** software, it is possible to program complete systems comprising several safety PLCs and safety remote I/O modules.
The conditions detailed in the software manual must be adhered to and a complete report accompanying the certificate should be established.

Reference

■ Reference **SSV1XPSMFWIN** is the full version of software **XPSMFWIN** version 4.1 and must be installed if no previous version of this software has been installed.

Description	Operating system	Composition	Language	Reference	Weight kg/ *lb*
Configuration software XPSMFWIN for programming compact XPSMF40●●, XPSMF3● and modular XPSMF60 safety PLCs	Windows 2000, Windows XP	CD-ROM + user manual	English, German, French	**SSV1XPSMFWIN**	0.520/ *1.146*

Installation



Software XPSMFWIN: project management

Software **XPSMFWIN** uses an electronic key (dongle) for protection against unauthorised use.

A USB dongle is available. It must be connected to the PC before the software is installed.
Drivers must also be installed on the computer to recognise the dongle. These drivers are included with software **XPSMFWIN** and are automatically installed during installation.
To install software **XPSMFWIN**:
□ Connect the dongle.
□ Insert the **SSV1XPSMFWIN** software CD-ROM into the computer.
□ Launch installation.
□ Select the preferred language from the configuration menu.
□ Follow the guided installation procedure for the software.
□ Restart the computer.
□ Launch the software by clicking on the Safety Suite icon on the desktop.

The computer hardware requirements are as follows:
■ Processor (Intel Pentium II 400 MHz minimum, Intel Pentium III 800 MHz recommended).
■ RAM (128 Mb minimum, 256 Mb recommended).
■ Graphics card (2 Mb XGA, 1024 x 768, 256 colours minimum, 8 Mb XGA, 1280 x 1024 True colour recommended).
■ Hard disk (1 Gigabyte minimum).
■ Operating system:
□ Windows 2000 Professional with Service Pack 1 or higher.
□ Windows XP with Service pack 1.

Programming software
Type XPSMFWIN
for Preventa compact & modular safety PLCs XPSMF

Interface

XPSMFWIN features two distinct windows, one for internal configuration and one for hardware management.

- Project management

This window enables creation, archiving and recalling of all the user programs. It contains all the logic functions and predefined certified function blocks.

- Hardware management

This window enables all hardware specific data, inputs and outputs and signal transfer between safety controllers to be defined, as well as the various safety PLCs being used or safety remote I/O modules.

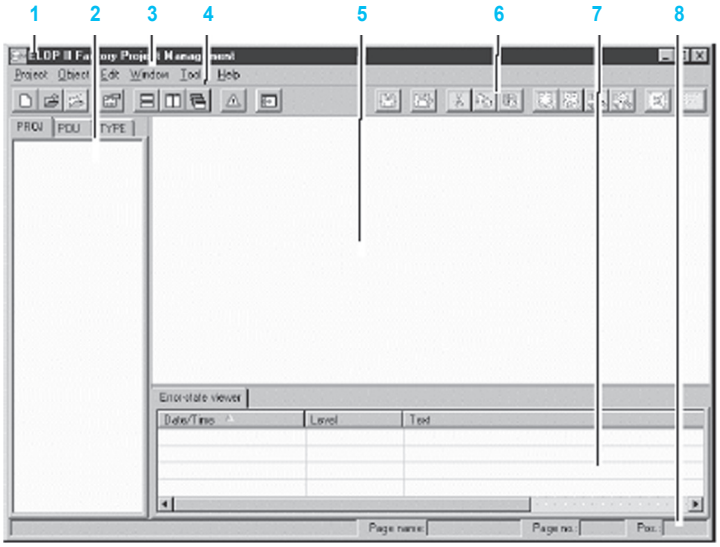
Items included in the XPSMFWIN interface

- Menu and title bar
- Toolbar and status bar
- Windows layout, structure window and work space
- Error display window

XPSMFWIN is a program offering numerous functions and features intuitive, Windows style, operation, making it a very user-friendly programming environment.

Project Management window layout

On launching software **XPSMFWIN**, the standard screen shown below opens. This screen generally includes the following items:

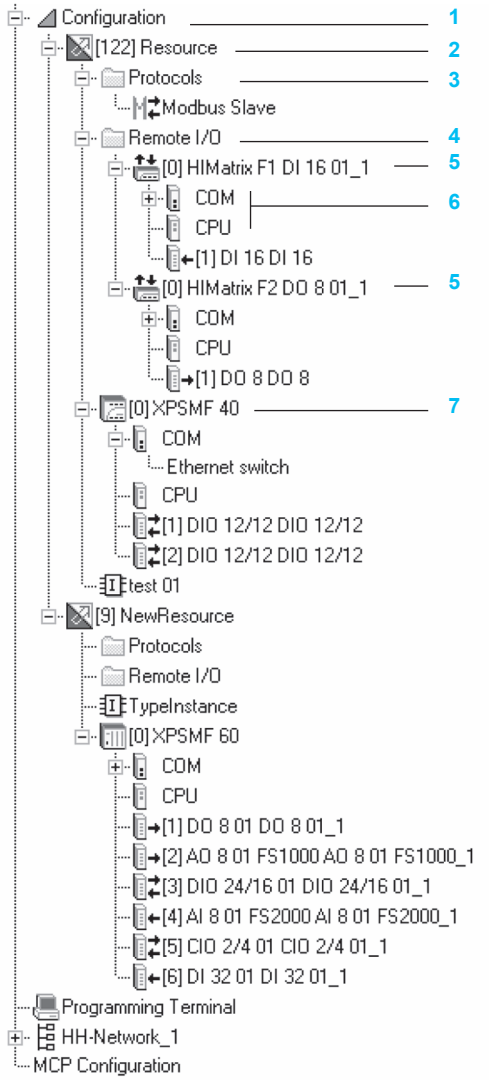


1 Title bar.
2 Structure window.
3 Menu bar.
4 Project management toolbar.
5 Work space.
6 FBD (Function Block Diagram) editor toolbar.
7 Error display window.
8 Status bar with coordinate information of the function plan editor.

Programming software

Type XPSMFWIN

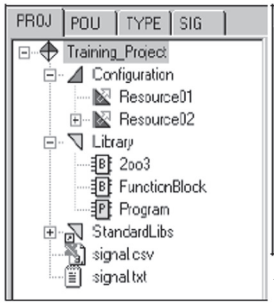
for Preventa compact & modular safety PLCs XPSMF



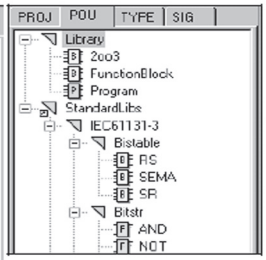
Structure window

1 Configuration.
2 Resource folder.
3 Communication protocols.
4 Remote I/O folder.
5 Remote I/O type.
6 Components and modules.
7 Resource type

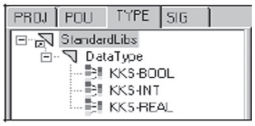
The structure window displays the hierarchical structure of the project. Selecting one of three views provides the user with different levels of detail.



Complete project



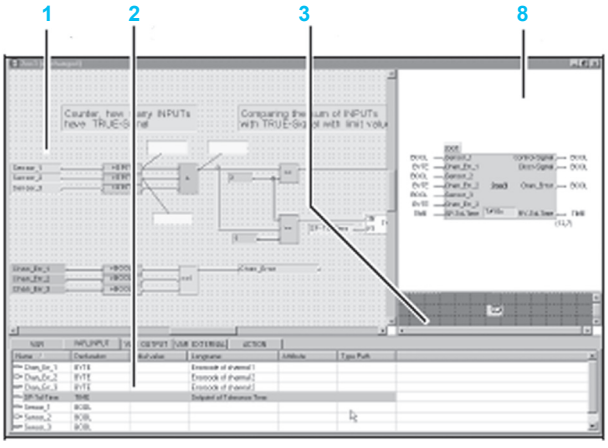
All POUs (Program Organisation Units)



All data types

FBD (Function Block Diagram) editor

Using this editor, the user can create function blocks in FBD (Function Block Diagram) language or SFC (Sequential Function Chart) language.
The FBD editor comprises the following panes:



1 Drawing field.
2 Variable declaration editor.
3 Overview window.
4 Interface declaration editor.

Programming software
Type XPSMFWIN
for Preventa compact & modular safety PLCs XPSMF

Programming

Software **XPSMFWIN** enables programming of the entire range of Preventa safety PLCs **XPSMF**.
The powerful and easy to use methodology of this software enables users to quickly and simply familiarise themselves with the product. The Windows based look and user-friendliness provides users with trouble free operation of the software.

On launching the software, the program's start-up assistant opens simultaneously. This assistant enables the user to easily open a new or existing file, delete a file or archive a file. Once a new or existing file is opened, the user quickly accesses the working environment.

Configuration

The user can begin creating a configuration as soon as a personal library is set-up, that will contain the user configuration(s).
Once the personal library is opened, the user can use the standard library function blocks (And, Or, Not, Flip-Flop, etc.) to create exactly what is required.

The user drags the function blocks into the configuration environment and places them where required. Once the function blocks are placed, the user can define specific signals or variables for the inputs and outputs.

The Hardware menu enables assigning of all the signals to the relevant inputs and outputs.

From within the Hardware menu the relevant safety PLCs are selected using the pull-down menu of each resource.
To add additional safety PLCs a new resource is easily created and assigned with the type of safety PLC.

Up to 64 remote inputs/outputs can be assigned to each safety PLC.
Once all the safety PLCs and remote I/Os have been selected, the signals can be simply connected to the relevant safety modules.
The "drag and drop" function enables defining of the inputs and outputs.

Therefore, configuration is very quick and simple.
Once all the inputs and outputs have been defined the user can compile the entire program, which is performed in the configuration menu.
Compilation must be performed twice and the results of both compilations printed and compared. If both results match, the program can be downloaded via the Ethernet RJ45 communication port on any of the safety PLCs.

Program execution

The program will automatically be stored in all the safety PLCs.
The safety PLCs can then execute the configuration and full diagnostics can be viewed on screen.
The software incorporates various diagnostic options that can be used to quickly identify the presence of errors. Some of these diagnostic options are "On-line test": which displays the logic condition of all the I/Os. Others allow the user to view the status of the transmission line, the cycle time and errors that have occurred on the communication line.

The programming tool enables the user to create and design to suit their needs. Other certified function blocks are available, which enable the overall configuration time to be further reduced. Included in these additional blocks are "Muting" and "Emergency stop" functions, together with 12 other certified functions.

Modbus TCP/IP, Modbus serial (RTU) and PROFIBUS DP protocols are included in software **XPSMFWIN**. They can be used for non safety related data transfer.

Preventa safety compact PLCs
Type XPSMF40, XPSMF31/30/35
Product reference index

S

SSV1XPSMFWIN 12

X

XPSMF3022 9, 10

XPSMF3502 9, 10

XPSMF3522 9, 10

XPSMF3542 9, 10

XPSMF4000 7, 10

XPSMF4002 7, 10

XPSMF4020 7, 10

XPSMF4022 7, 10

XPSMF4040 7, 10

XPSMF4042 7, 10

XPSMF31222 9, 10

More information on
http://www.schneider-electric.com/machinesafety

Schneider Electric Industries SAS

Head Office
35, rue Joseph Monier
F-92500 Rueil-Malmaison
France

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

Design: Schneider Electric
Photos: Schneider Electric

MKTED2140707EN

01/2015